

REMARKS

This Amendment is submitted in response to the non-final Office Action mailed on November 5, 2003. Claims 1, 2 and 5-19 are pending, claim 1 has been cancelled, claims 2, 5, 8, 10, 12 and 13 have been amended, and claims 20-24 are new. Applicants note with appreciation the Examiner's indication of allowed subject matter in claims 16-19 and allowable subject matter in claims 5, 6, 7, 9, 10, 11 and 14. In view of the foregoing amendments and the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and request reconsideration of the application in this regard.

Objection to the Claims

The Examiner objected to claims 5, 6, 7, 9, 10, 11 and 14 as depending upon a rejected independent claim 1. Applicants have elected to rewrite dependent claims 5 and 10 by amendment in independent form. Claims 6, 7, 9, 11 and 14 depend either directly or indirectly from one of claims 5 and 10. Accordingly, Applicants respectfully request that the objection to the claims be withdrawn.

Objection to the Drawings

The Examiner has objected to the drawings as not showing the subject matter of dependent claim 19. Applicants have amended the specification, without the addition of any "new matter," to clarify that the feature described by reference numeral 92 refers to inner pump buckets. The existence of inner pump buckets 92 is logically

self-evident from Applicants' detailed description, which describes the rotatable element 2 as having outer pump buckets 94 at page 11, lines 16-18. Because inner and outer pump buckets are depicted in Applicants' Figure 5 and labeled with reference numerals 92 and 94, respectively, a drawing correction is not required. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

Objections to the Specification

The Examiner objected to the title of the invention as being non-descriptive. Applicants have amended the title to more clearly describe the invention. In addition, the Examiner objected to the specification because of informalities in the description of Figure 2A. Applicants have further amended the specification to describe Figure 2A in the Brief Description of the Drawings and in the Detailed Description. Accordingly, Applicants respectfully request that the objections to the specification be withdrawn.

Rejection of Claims Under 35 U.S.C. § 102

Claims 1, 2 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,224,744 (Broomall). Of the rejected claims, claim 1 has been cancelled and claims 2 and 8 have been amended to depend from new independent claim 5, which Applicants have rewritten in independent form to include the limitations of the former claim 1. Furthermore, claims 2 and 8 recite unique combinations of elements not taught, disclosed or suggested by Broomall. Accordingly,

Applicants' claims 2 and 8 are patentable and it is respectfully requested that the rejection be withdrawn.

Rejection of Claims Under 35 U.S.C. § 103

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Broomall in view of U.S. Patent No. 5,253,937 (Scheimann et al.). Claim 12 has been amended to depend from a patentable independent claim 5. This claim also recites a unique combination of elements not taught, disclosed or suggested by Broomall as modified by Scheimann et al. Accordingly, Applicants' claim 12 is patentable and it respectfully requested that the rejection be withdrawn.

Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Broomall in view of U.S. Patent No. 5,980,100 (Haegeman). Claim 15 has been amended to depend indirectly from a patentable independent claim 5. Claim 15 also recites a unique combination of elements not taught, disclosed or suggested by Broomall as modified by Haegeman. Accordingly, Applicants' claim 15 is patentable and it respectfully requested that the rejection be withdrawn

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Broomall in view of U.S. Patent No. 5,779,360 (Tanaka). Claim 13 has been amended to depend from a patentable independent claim 5. This claim also recites a unique combination of elements not taught, disclosed or suggested by Broomall as modified by Tanaka. Accordingly, Applicants' claim 13 is patentable and it respectfully requested that the rejection be withdrawn.

New Claims

Claims 20-24 have been added as new claims that depend directly or indirectly from patentable independent claims. These claims also recite unique combinations of elements not taught, disclosed or suggested by the art of record. For at least these reasons, Applicants submit that claims 20-24 are patentable.

Supplemental Information Disclosure Statement:

Applicants submit that the claims, as amended, are patentable over the documents brought to the attention of the Examiner by way of a Supplemental Information Disclosure Statement (IDS) mailed after the November 5, 2003 mailing date of the non-final Office Action. Applicants provide herewith a translation of FR 606,508 for consideration by the Examiner. Although this reference was among the documents included in the Supplemental IDS, a translation of FR 606,508 was not available on the submission date of the Supplemental IDS. Applicants have also enclosed a copy of an Office Action dated November 4, 2003 from a corresponding application currently pending in the European Patent Office and a translation of the Office Action.

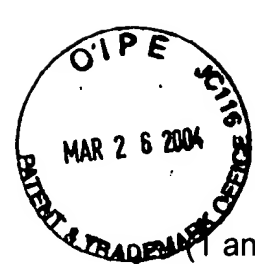
FR 606,508 describes a homogenizer for homogenizing free-flowing substances. According to page 1, line 37 of FR 606,508, the rotors' surfaces in an axial direction show circular sets of protrusions (rang circulaires de pointes), or flute, or teeth (cannelure ou dent). In contrast to independent claim 5, as amended, FR 606,508 does not disclose, teach or suggest a rotatable element constructed as an impeller with

a plurality of pump buckets. Specifically, the charging funnel (tremie de chargement, page 2, line 5 and Fig. 1) mounted on the central shaft is used for conveying the substance to be processed. The charging funnel of FR 606,508 cannot be regarded as an impeller, which is characterized by pump buckets at the periphery and not close to the center of rotation. Therefore, claim 5 is patentable over FR 606,508.

Independent claim 10, as amended, is patentable over FR 606,508 for at least the same reasons as independent claim 5. In addition, FR 606,508 does not disclose, teach or suggest that the drive motors are controlled such that the rotor and the rotatable element can be rotated at adjustable relative speeds. FR 606,508 discloses that the speeds of both discs can be chosen freely and that they may have a common or a contrary rotational direction. However, FR 606,508 does not disclose controlling the drive motors such that the rotor and the rotatable element can be rotated at adjustable relative speeds in the same or opposite directions. Therefore, claim 10 is patentable over FR 606,508.

Independent claim 16 is patentable over FR 606,508 for at least the same reasons as claim 5. Moreover, FR 606,508 does not disclose, teach or suggest stator blades. Therefore, claim 16 is patentable over FR 606,508.

U.S. 4,786,183 (Cadeo) does not disclose, teach or suggest an impeller with a plurality of pump buckets. Although Cadeo discloses pump impellers (1 and 2), it does not disclose pump buckets. Pump buckets serve to cause a fluid stream in an axial direction and are therefore located at the periphery of the impeller. The impellers



(1 and 2) of Cadeo lack pump buckets. Therefore, independent claims 5 and 10 are patentable over Cadeo.

Cadeo does not disclose stator blades within the housing. In particular, it does not disclose, teach or suggest stator blades positioned between the rotor blades and the pump buckets. Therefore, independent claim 16 is patentable over Cadeo for at least this reason.

Conclusion

Applicants have made a bona fide effort to respond to each and every requirement set forth in the Office Action. In the event that any issues remain outstanding, the Examiner is invited to contact the undersigned to expedite issuance of this application.

Applicants do not believe fees are due in connection with filing this communication other than the excess claims fee and a two-month time extension fee. If, however, additional fees are necessary as a result of this communication, the Commissioner is hereby authorized to charge any under-payment or fees associated with this communication or credit any over-payment to Deposit Account No. 23-3000.

Respectfully submitted,
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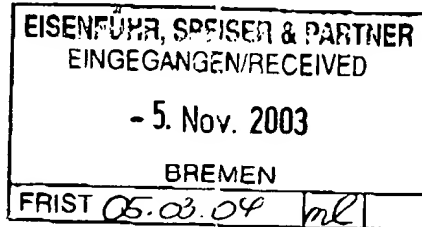
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Anmeldung Nr. 01 103 854.4 - 2307	Zeichen S 4721	Datum 04.11.2003
Anmelder Schröder & Boos, Misch- und Anlagentechnik GmbH & Co. KG		

Bescheid gemäß Artikel 96(2) EPÜ

Die Prüfung der obengenannten Anmeldung hat ergeben, daß sie den Erfordernissen des Europäischen Patentübereinkommens aus den beigefügten Gründen nicht genügt. Werden die genannten Mängel nicht behoben, so kann die Anmeldung nach Artikel 97(1) EPÜ zurückgewiesen werden.

Sie werden aufgefordert, innerhalb einer Frist

von 4 Monaten

gerechnet von der Zustellung dieses Bescheides, Ihre Stellungnahme einzureichen und die angeführten Mängel, soweit diese behebbar sind, zu beseitigen. Die Frist berechnet sich nach den Bestimmungen der Regeln 78(2), 83(2) und (4) EPÜ.

Änderungen zur Beschreibung, zu den Ansprüchen und den Zeichnungen sind gegebenenfalls innerhalb der genannten Frist in einem Exemplar auf gesonderten Blättern (Regel 36(1) EPÜ) einzureichen.

Unterlassen Sie es, auf diese Aufforderung rechtzeitig zu antworten, so gilt die europäische Anmeldung als zurückgenommen (Artikel 96(3) EPÜ).



VOUTSADOPOULOS K
Beauftragter Prüfer
für die Prüfungsabteilung

Anlagen: 2 Seiten/Gründe (Form 2906)
FR-A-606 503 (5 Seiten) US-A-4 786 183 (6 Seiten)???WO-A-91 07223 (19 Seiten)



Bescheid/Protokoll (Page)

Communication/Minutes (Annex)

Notification/Procès-verbal (Annexe)

Datum
Date 04.11.2003
Date

Blatt
Sheet 1
Feuille

Anmelde-Nr.;
Application No.: 01 103 854.4
Demande n°:

Der Prüfung werden **folgende Anmeldungsunterlagen** zugrunde gelegt:

In der Fassung für die Vertragsstaaten

AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR LI

Beschreibung, Seiten:

1-8 ursprüngliche Fassung

Patentansprüche, Nr.:

1-13 eingegangen am 30.07.2002 mit Schreiben vom 30.07.2002

Zeichnungen, Blätter:

1/6-6/6 ursprüngliche Fassung

In diesem Bescheid werden folgende Dokumente (D) genannt; Dokumente D1, D3 und D4, die dem Bescheid als Anlage beigefügt sind, werden gemäß den Richtlinien C-VI, 8.9 vom Prüfer eingeführt; die Nummerierung wird auch im weiteren Verfahren beibehalten:

D1: FR-A-606 508

D2: DE 553 055 C (P.GRIESE)

D3: US-A-4 786 183

D4: WO-A-91 07223

1. Die vorliegende Anmeldung erfüllt nicht die Erfordernisse des Artikels 52(1) EPÜ, weil der Gegenstand der Ansprüche 1, 3-5 und 8-10, im Sinne von Artikel 54(1) und (2) EPÜ nicht neu ist.
Alle technische Merkmale der obengenannten Ansprüche sind im Dokument D1 offenbart (Art. 54 EPC).
Die Offenbarung des Dokuments D3 (siehe die Zusammenfassung; die Abbildungen) steht auch dem Gegenstand des Anspruchs 1 neuheitsschädlich entgegen.



2. Die zusätzlichen Merkmale der abhängigen Ansprüche 2, 6, 7, und 11-13 gehen nicht über die fachübliche Vorgehensweise des Fachmanns hinaus und können damit keine erfinderische Tätigkeit begründen (Art. 56 EPÜ).
Hinweise auf solche Merkmale sind im übrigen aus den Dokumenten D2 (siehe Seite 2, Zeilen 109-110; Abbildung), D3, D4 (siehe die Abbildungen) oder aus den im Recherchenbericht zitierten Dokumenten (z. B. US-A-3 318 579) entnehmbar.
3. Gegenwärtig ist nicht erkennbar, welcher Teil der Anmeldung die Grundlage für einen neuen, gewährbaren Anspruch bilden könnte. Sollte der Anmelder dennoch einen einzelnen Gegenstand als patentfähig ansehen, so sollte ein auf diesen Gegenstand gerichteter, im Einklang mit Regel 29(1) EPÜ abgefaßter unabhängiger Anspruch eingereicht werden. Im Antwortschreiben sollte einerseits der Unterschied zwischen dem Gegenstand des neuen Anspruchs und dem gesamten vorliegenden Stand der Technik und andererseits die Bedeutung dieses Unterschiedes angegeben werden.
4. Um die Prüfung von geänderten Anmeldungsunterlagen im Hinblick auf Artikel 123(2) EPÜ zu erleichtern, wird der Anmelder gebeten, die durchgeführten Änderungen, unabhängig davon, ob es sich um Änderungen durch Hinzufügen, Ersetzen oder Streichen handelt, deutlich aufzuzeigen und anzugeben, auf welche Stellen in der ursprünglich eingereichten Anmeldung sich diese Änderungen stützen.
Gegebenenfalls können diese Angaben in handschriftlicher Form auf Kopien der betreffenden Teile der ursprünglichen Anmeldung erfolgen.

Der Anmelder wird weiterhin gebeten, die Änderungen so durchzuführen, daß nur diejenigen Seiten neu eingereicht werden, die geändert worden sind.

Our file: S 4721
application No. 01 103 854.4-2307
04.11.2003

TRANSLATION

Communication pursuant Article 96(2) EPC

The examination of the above-identified application has revealed that it does not meet the requirement of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Art. 97 (1) EPA.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period of

4 months.

from the notification of this communication, this period being computed in accordance with Rules 78(2) and 83(2) and (4) EPC.

One set of amendments to the description, claims, and drawings is to be filed within the said period on separate sheets (Rule 36(1) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).

VOUTSADOPOULOS K
Primary Examiner
for the Examining Division

enclosures: 2 page/s reasons (Form 2906)

FR-A-606 508 (5 pages) US-A-4 786 183 (6 pages) ??? WO-A-91 0223 (19 pages)

[page 2]

[...]

In this action the following documents (D) are mentioned: documents D1, D3, and D4 which are enclosed have been cited for the first time by the examiner following guidelines C-VI, 8.9.; wherein the numbering will also apply for the further proceeding:

D1: FR-A-606 508

D2: DE 553 055 C (P. GRIESE)

D3 : US-A-4 786 183

D4: WO-A- 91 07223

1. The present application does not meet the requirements of Article 52(1) EPC, as the subject matter of the claims 1, 3-5, and 8-10 are not new in terms of Article 54(1) and (2).

All technical features of the above mentioned claims are disclosed in document D1 (Art. 54 EPC).

The disclosure of the document D3 (see summary; drawings) opposes novelty of the subject matter of claim 1 as well.

[page 3]

2. The additional features of the dependent claims 2, 6, 7, and 11-13 do not exceed the common approach of a person skilled in the art and cannot give reason for the assumption of an inventive step

Evidence leading to such features can incidentally be taken from documents D2 (see page 2, lines 109-110; drawing) D3, D4 (see drawings) or from the documents cited in the search report (e.g. US-A-3 318 579).

3. At present it is not noticeable which part of the application could serve as a basis for a new, allowable claim. However, should the applicant regard a single subject matter as patentable, a new claim should be filed which is in accordance with Rule 29(1) EPC and which is directed at this subject matter. The written reply should specify the difference between the subject matter of the new claim and the complete cited prior art on the one hand and the importance of this difference on the other hand.
4. To ease the examination of the amended application and with regard to Art. 123(2) EPC the applicant is asked to indicate the amendments irrespective of these amendments being amendments through adding, replacing, or deleting and to indicate their basis in the original application.

Where appropriate, these amendments can be made by hand on copies of the respective parts of the original application.

The applicant is asked to accomplish the amendments in a way that only the amended pages are re-filed.

FRENCH REPUBLIC

MINISTRY FOR COMMERCE AND INDUSTRY

DIRECTION FOR INDUSTRIAL PROPERTY

INVENTION PATENT

Gf. V

No. 606.508

Improvement of centrifuges for emulsifying, mixing or pulverizing liquid, semi-liquid or dry substances of all kinds.

Mr. Robert SURTEES, who lives in England.

Filed November 18, 1925, at 4.30 p.m in Paris,

Delivered March 9, 1926 - Published June 15, 1926.

(Patent application filed in England on November 19, 1924 - Declaration of the applicant)

The present invention relates to centrifuges used to emulsify or pulverize substances of all kinds: liquid, semi-liquid or dry.

The more particular objective of this invention is the realization of an apparatus allowing to obtain emulsions or colloidal suspensions.

The concerned apparatus might thus be called a "colloid mill".

The attached drawing shows different modes of realization of the invention, by way of example.

Figure 1 shows a machine including an exterior annular chamber *a*, which acts as a collector, between the edges of which penetrate two discs *b* and *c*, which are parallel or inclined with regard to each other, according to which is considered to be more convenient. Each of these disks is mounted on an independent axis, one on an axis *d*, the other on an axis *e*, both axes being supported by bearings *f*, and the central axis *e* passing through the exterior axis *d*, which is hollow.

One of the disks may be fixed, it may turn in the opposite direction as compared to the other disk, or it may turn in the same direction, with the same velocity or with a different velocity.

The distance between the faces of the disks may be adjusted and fixed, also when the disks are turning, adjustment and fixation being assured by a micrometer system actuated by means of a hand wheel x .

Circular rows of points, grooves or splines g are arranged on the face of each of the aforementioned disks. The rows of points or splines of one of the disks are set between the rows of the facing disk.

A ring or a grinding plate h , the surface of which may either be smooth or present grooves, set concentrically or eccentrically in relation to the axis of the corresponding spindle, are set near the edge of each of the disks, either obliquely or parallel or perpendicular to the surface of the disk.

The aforesaid rings or splines or grooved plates may either be part of the disks or be independent from the latter; the splines or points may have any shape: round, square, rectangular or any other shape.

As already mentioned, the angle formed by their axis and the face of the disk and with the tangent to the circle of rotation may be arbitrary.

The disk mounted on the central spindle carries a loading hopper i shaped as a cone frustum, the base of smaller diameter being outside the disk and the base of larger diameter being located against the disk.

The first base is open, to allow the introduction of the substance to be treated, the second base communicating through orifices j with the free space between the disks.

To facilitate the entrainment of the substance towards the interior of the disks, the interior surface of the aforementioned hopper may present diverse structures. It may be smooth, present a spiraled shape, be grooved or have any other convenient shape.

The substance introduced into the gap between the disks is displaced towards the periphery through the centrifugal force generated by the rotation of the disks.

The substance thus runs between the rows of splines, points or grooves of the said disks, is forced towards the exterior edge of the disks and, in the end, runs out between the said grinding plates or rings, finally running into the aforementioned collecting chamber.

The actuating spindles may be started in any convenient manner, either by means of independent pulleys, of cogs, of wormed gears or of friction gears.

The disks and splined rings may be set so that their face lies horizontally, vertically or in oblique position. The bearings and gears may be disposed so as to be immersed in oil, to facilitate rotation.

Figure 3 shows a realization variant of the apparatus, with both driving spindles supported by bearings k independent from each other, and each disk m being fitted with a loading hopper l .

Figure 3 shows a second realization variant, in which the left end of the central spindle n is supported by a supplementary bearing o .

Figures 4 and 5 show detailed sections through grinding rings p and q .

In certain modes of construction, it may be of interest to use flat disks bare of any protuberances.

It is evident that the invention may be used for a very large number of applications, without leaving its field. One might for example use bearings with water tight gaskets, or any other accessories required to face any type of difficulties which may appear during the treatment of different kinds of substances.

SUMMARY

The object of the present invention is a centrifuge used to emulsify, mix or pulverize any kind of substances, the aforementioned apparatus being characterized by the combination of the following means:

It includes two or several rotating disks carrying splines, points or grooves and rotating either inversely to each other or in the same direction, at different velocities or at the same velocity.

These rotating disks carry loading hoppers installed so as to direct or entrain the substance to be treated towards the central part of the gap between the disks.

A circular hull set around the disks, the edges of which are set against the edges of the disks, forms a reception chamber for the treated substance, which is forced towards the exterior through the action of centrifugal forces.

Robert SURTEES

By power of attorney:

Dom. CASALONGA